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# REPORT OF THE COUNCIL.

Since the Annual Meeting of the 26th of May, 1891, the Academy has lost by death twenty-three members; — eleven Fellows, Henry Ingersoll Bowditch, Edward Burgess, George Bassett Clark, Thomas Sterry Hunt, William Raymond Lee, Joseph Lovering, James Russell Lowell, George Hinckley Lyman, David Humphreys Storer, Cyrus Moors Warren, and Sereno Watson; six Associate Fellows, Fordyce Barker, George Washington Cullum, William Ferrel, Thomas Hill, Noah Porter, and Lewis Morris Rutherfurd; and six Foreign Honorary Members, John Couch Adams, Sir George B. Airy, Anatole François Hüe Marquis de Caligny, August Wilhelm Hofmann, Sir Andrew Crombie Ramsay, and Wilhelm Eduard Weber.

## RESIDENT FELLOWS.

### EDWARD BURGESS.

**Edward Burgess** was born, June 30, 1848, at West Sandwich, Mass., and graduated at Harvard in the class of 1871. During his college life he studied natural history successfully, and was extremely fond of yachting, showing in this way the forcible working of the two dominating tastes that he afterwards carried to successful issues when it became important to follow them out with practical assiduity. He became Secretary and Librarian of the Boston Society of Natural History by election on February 21, 1872, and continued to hold these offices until May 2, 1888, when he resigned to devote himself wholly to the profession of a naval architect. He died at Boston, July 12, 1891.

His scientific work never engrossed his whole attention, as did the study of the best construction of sailing vessels, but his work was of the highest excellence in certain directions, commanding the respectful attention of men of the first rank in all parts of the world.

Samuel H. Scudder, the eminent entomologist, speaks in his obituary notice of Burgess with such authority that we have done little besides follow him in this brief article.

Soon after his connection with the Society of Natural History began, he commenced to work in collaboration with Mr. Scudder upon the abdominal appendages of New England butterflies, the results of which were published in Scudder's celebrated volumes on those animals. This was followed by a joint work published by these two authors upon the similar organs of the different species in the Thanaos. He subsequently published a series of anatomical papers beginning with an investigation of the structure of the head and of the mouth parts in the Psocidæ. The most important and valuable was that upon the anatomy of the Milkweed Butterfly. Mr. Scudder says of this: " In the text and plates accompanying the larger memoir he gave a more precise and detailed account of both the external and internal anatomy of the insect discussed than had ever been given before of the anatomy of any perfect butterfly, and brought to light a number of interesting points that had been nearly or quite overlooked before, such as the nature of the striæ on the scales, the musculature of the tongue and its intimate structure, the cuticular processes of the food reservoir, the backward course and chambered enlargement of the aorta within the thorax, and the false claspers of the male abdomen, a remarkable series of new observations to have been made upon a single insect."

His discovery of the strange course of the aorta in this butterfly led him to pursue the subject further by the dissection of a number of lepidopterous insects, and to embody its results in a brief illustrated paper in the Proceedings of the Boston Society of Natural History in the following year, by which he showed " that, if we except the peculiar course of the anterior branch (of the aorta) in the hawk-moth, we have (in the Lepidoptera) a gradual series from the butterflies downward. In the former a distinct horizontal aortal chamber is present; in the higher moths a vertical node replaces the chamber, and this vanishes in the lower moths."

His discovery of the curious locked up mouth of the larva of Dysticus in an animal previously supposed to have been mouthless followed this in the same year, and his anatomy of the grasshopper, Anabrus, and of the moth, Aletia, followed each other in succession, and all of them were executed with such skill in every respect as to command the attention of entomologists in every part of the world.

He was considered an authority upon the Diptera, and his collection of these animals contained fourteen thousand specimens. He however published but little, although he had really done a large amount of systematic work upon this order.

His favorite recreation in the summer time was yachting ; and while engaged in this apparently aimless occupation, he was really studying the construction and handling of vessels, and following out a natural bent leading to the development of the best and highest qualities of his mind.

The services he rendered to natural history, although of high excellence, were not unique, whereas it may be said with confidence that his work in naval architecture was a reform of the first magnitude. Constructors worked empirically and were not able to produce improvements in any two consecutive boats which would show the certain working out of results by means of a scientific method. Burgess applied the discipline his mind had gained from the study of science to the problem of boat building, and demonstrated the fact that a system could be invented and used which would give certain results.

Knowing Mr. Burgess personally, and occupying for many years the same office with him, also having some acquaintance with the subject and its difficulties, it amazed me to see the modest confidence he possessed in his own application of scientific methods to this problem. His replies to my questions, on two successive occasions following the first victory in the international races, invariably disclaimed any great merit on his own part, or any certainty that he could construct a better model than his rivals, and he was fond of ending the argument by a highly characteristic remark, — " A scientific method and experience ought to enable me to beat myself."

The spirit of the scientist was dominant in him, and even during times of the highest excitement I never knew him to admit that he desired his boat would win in the international races. He always insisted that he hoped the best model would win, declaring that the object to be attained was the highest excellence in naval construction, and this was to him more important than any other. It is a matter of serious regret to his friends, and perhaps a great loss to the world, that he never reached the goal of his desires, — an opportunity to apply his methods and test their value on a large scale in the construction of first-class steamers.

Personally, Edward Burgess endeared himself to all closely associated with him by his uniform good nature and fairness. He never plumed himself in the slightest degree upon his successes, and the public adulation which crowned him after the international races was received with gratification, but did not in the least disturb his equability or increase his self-esteem. His untimely death was a national loss, for there is no doubt among those that knew him that he was capable of steady progressive development, a quality of body and mind which, in combination with genius, gave strong assurance of a future greater even than the past.

## GEORGE BASSETT CLARK.

George Bassett Clark was born in Lowell, Mass., on February 14, 1827. His early education was received at the Grammar School, the High School, and afterwards at Mr. Whitman's private school in Cambridge, to which place his father had removed in 1835. In 1844, the subject of this notice entered Phillips Academy at Andover, where he completed his literary education, and began for himself an original course of practical training in the work which was subsequently to distinguish him. He had already shown an interest in the mechanical arts, and had made his proficiency with the lathe a source of some little profit to himself, by manufacturing toys for his juvenile accquaintances. He now procured a piece of an old bell, which he took home with him, and from which he undertook to construct the speculum of a reflecting telescope. Undeterred by the doubts of his elders as to the possibility of bringing his scheme to a successful conclusion, he presently gave them a practical proof of his ability by producing an instrument with which a satisfactory view of Jupiter and its satellites could be obtained. This first success encouraged him to attempt the construction of refracting as well as of reflecting telescopes; and his father, becoming interested in his son's experiments, was thus led to join him in the work. Neither the father nor the son, however, seems at this time to have expected seriously to undertake the business of an optician. Mr. Alvan Clark continued to employ himself as a portrait-painter, while the younger man, after finishing his course at the Phillips Academy, engaged in the work of civil engineering, and was employed in that capacity upon the Boston and Maine and the Ogdensburg and Lake Champlain Railroads.

The discovery of gold in California, in 1848, turned his attention to still another industry, and he was among the first who hastened to the new land of promise. His fortune differed little from that of the